

WHAT IS CLAIMED IS:

- 1 1. A method of forming a semiconductor structure comprising a low-K dielectric material
2 on a substrate comprising the steps of:
3 providing an environment having a regulated temperature;
4 placing a substrate having a top surface in said environment;
5 regulating said temperature of said environment to between about 0° C and 250° C;
6 depositing a layer of material on said top surface of said substrate wherein said layer has
7 a dielectric constant of no more than 2.5;
8 regulating the temperature of said environment between 0° C and 400° C; and
9 curing said deposited layer of material.
- 1 2. The method of claim 1 wherein said step of depositing is a process selected from the
2 group consisting of a CVD process and a spin-on process.
- 1 3. The method of claim 2 wherein said step of depositing is a CVD process.
- 1 4. The method of claim 2 wherein said step of depositing is a spin-on process.
- 1 5. The method of claim 1 wherein said deposited layer has a dielectric constant of between
2 about 1.9 and 2.5.
- 1 6. The method of claim 1 wherein said step of curing is a process selected from the group
2 consisting of a plasma treatment, an E-beam treatment and a UV treatment.
- 1 7. The method of claim 6 wherein said step of curing is a plasma treatment.
- 1 8. The method of claim 6 wherein said step of curing is a E-beam treatment.

- 1 9. The method of claim 6 wherein said step of curing is a UV treatment.
- 1 10. The method of claim 2 wherein said step of curing is a process selected from the group
2 consisting of a plasma treatment, an E-beam treatment and a UV treatment.
- 1 11. The method of claim 9 wherein said step of curing is a plasma treatment.
- 1 12. The method of claim 9 wherein said step of curing is a E-beam treatment.
- 1 13. The method of claim 9 wherein said step of curing is a UV treatment.
- 1 14. The method of claim 9 wherein said deposited layer has a dielectric constant of between
2 about 1.9 and 2.5.
- 1 15. The method of claim 1 wherein said environment of said curing step further includes a
2 gas selected from the group consisting of H₂, N₂, NH₃, CO₂, all hydride gases and a mixture of
3 said gases.
- 1 16. The method of claim 2 wherein said environment of said curing step further includes a
2 gas selected from the group consisting of H₂, N₂, NH₃, CO₂, all hydride gases and a mixture of
3 said gases.
- 1 17. The method of claim 6 wherein said environment of said curing step further includes a
2 gas selected from the group consisting of H₂, N₂, NH₃, CO₂, all hydride gases and a mixture of
3 said gases.
- 1 18. The method of claim 9 wherein said environment of said curing step further includes a
2 gas selected from the group consisting of H₂, N₂, NH₃, CO₂, all hydride gases and a mixture of
3 said gases.

1 19. The method of claim 16 wherein said deposited layer has a dielectric constant of between
2 bout 1.9 and 2.5.